Stormwater Management Planning

Guiding Principles, Practices & Policies

1. **Site planning guidelines:**
   - Develop concept plan for development and walk site with regulatory staff.
   - Establish storm water planning goals based on specific site conditions. (Goals relate to potential downstream impacts, such as: controlling peak flows, reducing runoff volumes, treating runoff water quality, encouraging infiltration, reducing runoff temperature, etc.)
   - Use soils/groundwater investigations to determine site limitations and feasibility for infiltration and other storm water BMP components (pond sealing, compaction, etc.)
   - Follow site planning guidelines listed for erosion control plans ("fit" the development to the site, avoid steep slopes, floodplains and natural areas, etc.)

2. **General storm water plan guiding principles:**
   - Preserve natural flow paths, watershed boundaries & discharge points.
   - Ensure space is reserved for infiltration/treatment/detention.
   - Minimize impervious surfaces and drain them to vegetated areas for filtering and infiltration.
   - Save natural & internally drained areas for infiltration & groundwater recharge.
   - Use native landscape plants to enhance filtering and infiltration (deeper roots).

3. **Water quality - treat/filter pollutants in runoff ("treatment train" concept):**
   - Encourage sheet flow off impervious surfaces to vegetated areas.
   - Encourage use of grass swales and open channels for runoff conveyance.
   - Use wet detention basins to trap sediment during and after construction.
   - Direct final discharges to prairie and wetland plantings for further filtering and infiltration.

4. **Runoff volume/infiltration/temperature concepts:**
   - Separate clean water (roofs) and route to infiltration trench/basin or rain gardens.
   - Use pervious/absorbing surfaces where possible (porous pavers, green roofs, etc.)
   - Pretreat polluted runoff before infiltration (highway, high density, commercial, industrial)
   - Extend underground soil contact time to reduce water temperature.
   - Reduce road widths and use of sidewalks (low travel areas, cul-de-sacs, etc.)
   - Distribute bioretention/infiltration BMPs throughout the site for large developments.

5. **Other planning, design & construction policies:**
   - Follow minimum state technical standards for design and construction of storm water BMPs to ensure their effectiveness and to minimize failure and related liabilities.
   - Ensure P.E. oversight of BMP construction, following inspection plans, preparing "as-builts" documentation and certifying compliance with approved plans.
   - For homes and business structures, maintain minimum 50-foot horizontal setback and 2-foot vertical separation (lowest exposed surface) from 100-year storm water flows.
   - Maintain minimum 1-foot vertical separation between basement floors and seasonal high groundwater.

6. **Provide for future storm water BMP maintenance:**
   - Record drainage easement restrictions for all major flow paths to prevent obstruction.
   - Clarify structure/lot ownership and maintenance in recorded documents (no single owners).
   - Ensure recorded "back-up plan" for municipal enforcement of maintenance needs.
   - Ensure access easements for municipal inspections and maintenance equipment.
   - Consider municipal ownership and blending with park and open space plans.